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JbK. =_g^_jgklhlg hr_gbk ihg^_glh\
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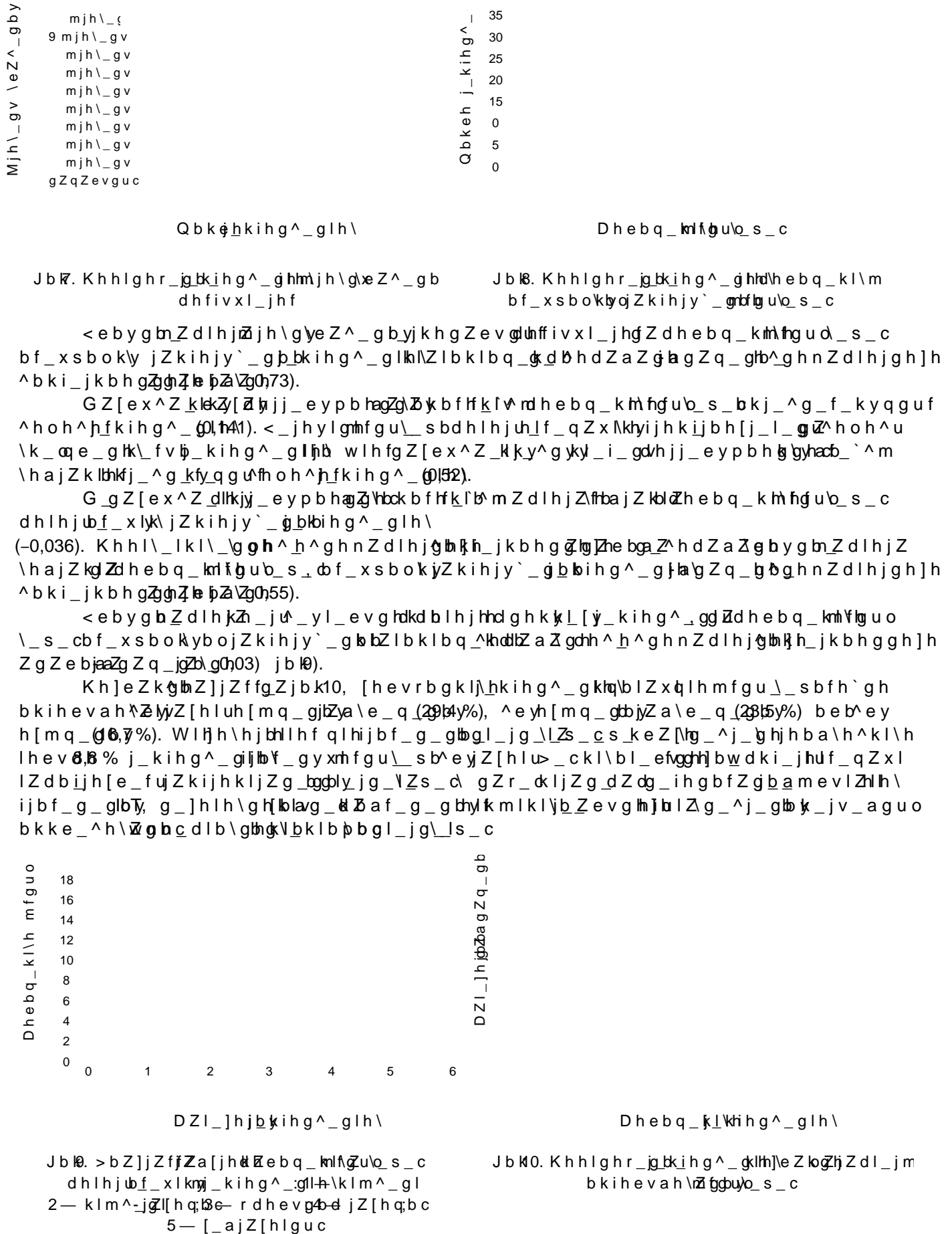
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3. S_j[bgbgZ X Dhgp_ipbgl_jg_lZs_/c F X S_j[bgbgZ: Kl_nZgh\Z
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4. Anna Gerber Connecting all the things in the Internet of Things / Anna Gerber, Jim Romeo IBM Developer. — 2020. — URL: <https://developer.ibm.com/technologies/iot/articles/101-connectivity-network-protocols/> (accessed 30.03.2021.)

5. Sachin Kumar. Internet of Things is a revolutionary approach for future technology enhancement a review / Sachin Kumar, Prayag Tiwari, Mikhail Zymbler. Journal of Big Data — 2019. — Vol. 6. — 111. URL:
<https://journalofbigdata.springeropen.com/articles/10.1186/s40537-020-268-2> (accessed 30.03.2021.)

6. Joy Patra. Securing IoT applications / Joy Patra, Amitranjan Gantait, Ayan Mukherjee IBM Developer. — 2018. — URL: <https://developer.ibm.com/technologies/iot/articles/first-secure-iot-solutions3/> (accessed 30.03.2021.)

7. Whitelegg D. Application privacy by design / Dave Whitelegg IBM Developer. — 2018. — URL:
<https://developer.ibm.com/technologies/iot/articles/2/> (accessed 30.03.2021.)

8. Pomerantz, O. 3D Printing for IoT Developers / Ori Pomerantz IBM Developer. — 2018 — URL:
<https://developer.ibm.com/technologies/iot/articles/3d-printing-for-iot-developers> (accessed 30.03.2021.)

9. Lupton, D. The Internet of Things: Social dimensions / Deborah Lupton / Sociology Compass — 2020 — Vol. 14 (4). — URL: https://www.researchgate.net/publication/338576609_The_Internet_of_Things_Social_dimensions (accessed 30.03.2021.)

10. >h\]Zev: Bgl_jg<l_s_dhgp_ipbheh`bgbaZ^Zqb: >h\]Zev<>h\]Zev
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<https://cyberleninka.ru/article/n/internet-veschey-kontseptsiya-prilozheniyai-zadach/viewer> ^ZlZh[jZs_gby
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11. FZjd_\Z< Bgl_jg<l_s_αhafh`ghblm]haueykh\j_f_gghjZgbaZpbc
: <FZjd_\Z[s_kl\khpbehi]kbyheh]byZ]h]:bZc+@2016. — < 2. — C. 42-46. —
URL: <https://cyberleninka.ru/article/n/internet-veschey-iot-vozmozhnosti-ugrozy-dlya-sovremennyh-organizatsiy/viewer> ^ZlhZ[jZs_g_b2y02.2021.)

12. FZjd_\Z< Khpbeviguk_e^kl]Zy\blbgl_jg_lZs_(IoT) / : <FZjd_\Z
Kh\j_f_gghnjfZpbbhgogheh]Bkh[jZah\ZgkZc+@2016. — L hf12, < 2. — K 236-
240. — URL: <https://cyberleninka.ru/article/n/sotsialnye-posledstviyarazvitiya-internetavescheyiot/viewer>
^ZlhZ[jZs_g_b2y02.2021.)

13. P_ldhX Y Bg_jg_l_s_αZdeh[ZevghjZkljmdmZgghjZpbbghgh]h
h[s_kl\X Y P_ldh\Kh\j_f_gguogheh]hZ\ve_gbyZ.c+@2017. — < (78). — URL:
[https://sovman.ru/article/7803/^ZlhZ\[jZs_g_b2y02.2021.\)](https://sovman.ru/article/7803/^ZlhZ[jZs_g_b2y02.2021.))

14. Gerber A. Key concepts and skills for getting started in IoT / Anna Gerber, Jim Romeo IBM Developer. — 2020. — URL: <https://developer.ibm.com/technologies/iot/articles/key-concepts-skills-get-started-iot/> (accessed 30.03.2021.)

15. Gerber A. Choosing the best hardware for your next IoT project/ Anna Gerber, Jim Romeo IBM Developer. — 2020. — URL: <https://developer.ibm.com/technologies/iot/articles/iot101-best-hardware-devices-iot-project/> (accessed 30.03.2021)

16. = h j h ^ b s _ \ Z G B g l _ j g _ \ _ s _ c b _] h f _ k l h \ b g n h j f Z p b h g h h s _ k l \ / : G = h j h ^ b s _ W Z A Z f y l b / g Z h p b Z e w g h g h f b q _ b k j h f c Z g b l Z j g m j g Z d j Z k g h d y j k h = : M — 2015. — < . — K 134-141.

l h k l m i b e Z \ j _ ^ Z d p b x
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j h k m ^ Z j k l \ _ g g g b q _ k n d p e \ _ j k 6 4 4 0 0 3 , J N] J h k l h g Z > h g m e = Z] Z j b j Z d Z g ^ b ^ Z l a b d h
f Z l _ f Z l b q _ g Z l m a c h p _ ORCID: <https://orcid.org/0000000244691603>, marinayadrovskaja@rambler.ru

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l _ o g b q _ k n d p e \ _ j k 6 4 4 0 0 3 , J N] J h k l h g Z > h g m e = Z] Z j b j Z d Z g ^ b ^ Z l a b d h
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K b g _ e v g b d h h g : e _ d k _ _ \ b i j _ d l h j b g n h j f Z l b a Z p b b F b g w d h g h f j Z a l h k k b b
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A Z y \ e _ g g e Z k h \ l h j h \
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